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# THE DOUGLAS FIR TUSSOCK MOTH IN BRITISH COLUMBIA

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The Douglas-fir tussock moth is a destructive defoliator of Douglas-fir trees in the semi-arid portions of southern British Columbia. Severe localized infestations occurred in 1916-21, 1928-31, 1945-49 resulting in top-killing or complete tree mortality. The beginning of another epidemic was observed in 1961.

## HOST TREES

The major host is Douglas-fir, Pseudotsugae menziesii (Mirb.) Franco, although in the United States the tussock moth may also occur on the true firs Abies spp. In British Columbia ponderosa pines adjacent to infested Douglas-fir trees have occasionally been severely defoliated during epidemics.

## DISTRIBUTION

The current epidemic (1960-61) so far has been confined to the North Okanagan, however we expect it to spread further. In earlier epidemics infestations have occurred from Cache Creek along the Thompson Valley to Shuswap Lake, up the North Thompson to Barriere, and from Salmon Arm south through Okanagan Valley, up the Similkameen Valley to Princeton, and in the Kettle River Valley from Rock Creek to Cascade.

## APPEARANCE OF INSECT

Adult: the grey to dark brown female moth is stout, wingless, ½ inch long. The male has a slender body; wings spread 1¼ inches, are light brown with a small white spot in the posterior distal angle of the fore-wing.

Egg: the eggs are white and spherical. They are laid on the cocoon in a mass of about 200 embedded in a frothy cement covered with hairs.

Larva: up to 1¼ inches long; head glossy black; body hairy, grey and black with small red tubercles and with a broken orange-yellow stripe on each side. On the fore-part of the body are two prominent black lateral pencil-tufts, on the posterior is one black dorsal pencil-tuft preceded by a shorter recurved rust-coloured tuft. Dense rust-tipped tooth-brush-like tufts occur on the back of the mid-body.

Pupa: the larva spins a grey-brown spindle-shaped cocoon (3/4 to 1 inch long) of silk and larval hairs in which it changes into a brown pupa. Tussock moth cocoons are found usually on the foliage or twigs.

## SEASONAL HISTORY

The tussock moth overwinters in the egg stage; hatching occurs in late May or early June. Dispersal most frequently occurs in the first

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larval stage when they are light and hairy and may be borne great distances on air currents. The larvae feed voraciously on the foliage until the end of June or mid July when pupation occurs. The pupal stage lasts about 10-14 days; the adults emerge, mate and the females deposit eggs shortly afterward.

## DESCRIPTION OF DAMAGE

The larvae eat new and old foliage. Open-grown trees, frequently those about farm buildings, are particularly subject to attack. The upper third of the crown is defoliated first (See Figure). Trees may die after one or two years of severe defoliation; top-killing is common in shade trees or stands of Douglas-fir that have been moderately to severely defoliated for one year only.

Hairs from the body of the caterpillars may cause a severe rash and irritation to the skin and eyes of some people.

## NATURAL CONTROL

Numerous parasites of the Douglas-fir tussock moth attack not only the larval and pupal stages but also the eggs. More important is a polyhedral virus that frequently causes a sudden collapse of the Douglas-fir tussock moth epidemics.

## CHEMICAL CONTROL

Chemical control should be applied in early June before discoloration of the foliage is apparent. DDT is the recommended material: DDT 50% wettable powder at 2 lbs. per 100 gals. of water. The foliage should be wet to the point of dripping.

Malathion 25% wettable powder at 1½ lbs. per 100 gals. water probably is effective but has not been tested in this area. Tests with this material are planned for 1962.

For details on chemical control of the Douglas-fir tussock moth consult:

Canada Department of Forestry, Forest Entomology Laboratory, Vernon, B. C., Phone Li-2-3841

or

Provincial Department of Agriculture, Court House, Vernon, B. C., Phone Li-2-3886.

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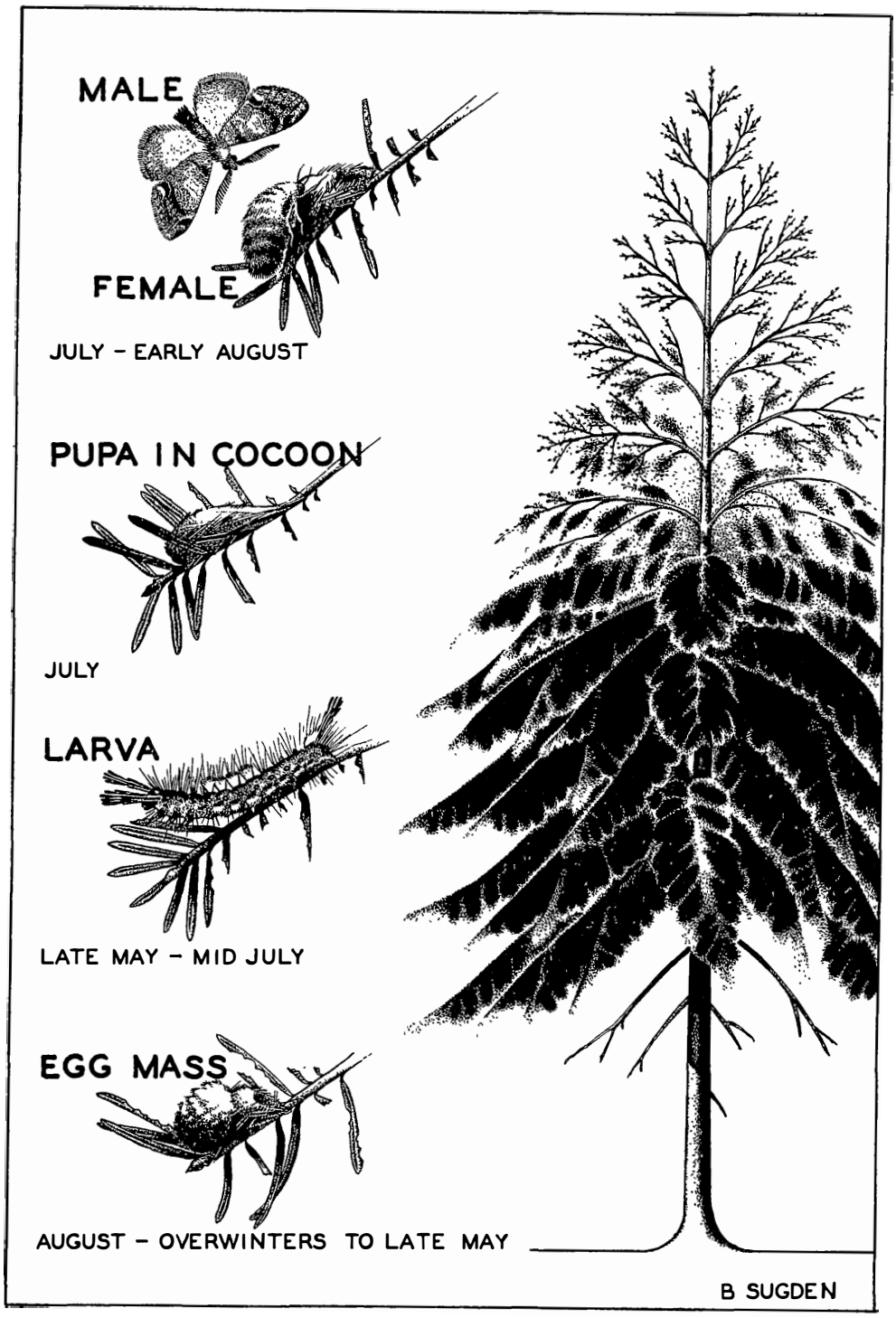
MALE
FEMALE
JULY - EARLY AUGUST
PUPA IN COCOON
JULY
LARVA
LATE MAY - MID JULY
EGG MASS
AUGUST - OVERWINTERS TO LATE MAY
B SUGDEN